UNITED STATES DEPARTMENT OF COMMERCE
Patent and Trademark Office
Address: COMMISSIONER OF PATENTS AND TRADEMARKS
Washington, D.C. 20231

12

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
[illegible]	12/28/99	OOI	P 4320-78

001057 1M62/0131
BERESKIN AND PARR
SCOTIA PLAZA
40 KING STREET WEST SUITE 4000 BOX 401
TORONTO ON M5H 3Y2
CANADA
AIR MAIL

EXAMINER	
FORTUNA, A	
ART UNIT	**PAPER NUMBER**
1723	10

DATE MAILED: 01/31/01

Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trademarks

RECEIVED
FEB 12 2001
BERESKIN & PARR

Office Action Summary

Application No. 09/425,236	Applicant(s) Cote et al.	
Examiner Ana Fortuna		Group Art Unit 1723

☒ Responsive to communication(s) filed on *Nov 13, 2000*

☒ This action is **FINAL**.

☐ Since this application is in condition for allowance except for formal matters, **prosecution as to the merits is closed** in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

A shortened statutory period for response to this action is set to expire *3* month(s), or thirty days, whichever is longer, from the mailing date of this communication. Failure to respond within the period for response will cause the application to become abandoned. (35 U.S.C. § 133). Extensions of time may be obtained under the provisions of 37 CFR 1.136(a).

[illegible] EXT. FINAL APRIL 30/01 / CS

[illegible] EXT. APPEAL JULY 31/01 / CS.

Disposition of Claims

☒ Claim(s) *1-3, 5-7, 9, and 10* is/are pending in the application.

Of the above, claim(s) ______ is/are withdrawn from consideration.

☐ Claim(s) ______ is/are allowed.

☒ Claim(s) *1-3, 5-7, 9, and 10* is/are rejected.

☐ Claim(s) ______ is/are objected to.

☐ Claims ______ are subject to restriction or election requirement.

Application Papers

☐ See the attached Notice of Draftsperson's Patent Drawing Review, PTO-948.

☐ The drawing(s) filed on ______ is/are objected to by the Examiner.

☐ The proposed drawing correction, filed on ______ is ☐ approved ☐ disapproved.

☐ The specification is objected to by the Examiner.

☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. § 119

☐ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).

☐ All ☐ Some* ☐ None of the CERTIFIED copies of the priority documents have been

☐ received.

☐ received in Application No. (Series Code/Serial Number) ______.

☐ received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

*Certified copies not received: ______.

☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

Attachment(s)

☐ Notice of References Cited, PTO-892

☒ Information Disclosure Statement(s), PTO-1449, Paper No(s). *9*

☐ Interview Summary, PTO-413

☐ Notice of Draftsperson's Patent Drawing Review, PTO-948

☐ Notice of Informal Patent Application, PTO-152

--- SEE OFFICE ACTION ON THE FOLLOWING PAGES ---

DETAILED ACTION

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. Claims 1-3, 5-7, 9-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cote et al.(WO 97/18887). Reference '887 discloses the process claimed including treating an affluent with an installation including an immersed the immersed membrane system having means for backwashing the membrane with a cleaning agent periodically, and at lest partially draining the effluent contained in the filtration tank to expose the membranes to air during cleaning. Cleaning in sequence of 30 minutes to 4 hours (total cleaning cycle), and aerating the membrane with air bubbles is also disclosed. The cleaning agents and suggested concentration for a particular period of time are also disclosed). Reducing the volume of reactant and the cleaning time by using the cleaning method including at least draining the tank while backwashing is disclosed (entire disclosure pages 1-22 and figures). Regarding claim 6, reference '887 also discloses performing the cleaning process as conventional in the art, e.g. without draining the tank (example 17), or draining the tank after cleaning. Transferring the content of one tank to another tank while performing the backwashing, for partially exposing the membrane to air is disclosed. (US 6,045,698 is equivalent for translation purpose). Regarding claim 1, draining the tank between 2-20 minutes is not disclosed by reference '887, however, reference '887 suggest performing a

chemical cycle with base or NaClO for a period of 10 minutes and 5 minutes respectively (table 1). It would have been obvious to one skilled in the art performing only chemical treatment to use the treatment time as suggested by ‘887. Regarding step g), performing the cleaning step simultaneously with the draining of the tank is suggested by ‘887, because cleaning and exposing the membrane to air, and simultaneously transferring the constant of the tank to another thank while performing the cleaning is disclosed. Performing the cleaning operation with the tank empty as compared to performing the cleaning with the tank full of the feed or concentrate was found to be optimum in reference ‘887. Therefore, performing the cleaning operation with the tank partially filled, e.g. or draining the tank during the cleaning process is also expected to have an improvement over the cleaning with the tank full, based on the feed fluid pressure exerted by the concentrate over the membrane, more pressure will be needed for backwash. Furthermore, exposing the membrane to air occurs during the draining process, as suggested by ‘887. Therefore, it would have been obvious to one skilled in the pertinent art, based on the reasons discussed above, to simultaneously drain the tank and backwash the membranes, and further select a cleaning time equal to the time of one chemical cycle. Reference ‘887 fails to disclose the total concentration of chemical needed for cleaning the membrane in a week as min mg/l, but discloses using NaOCL as cleaning agent in a concentration of 0.03 % in 100l/h for 15 minutes, and also discloses using between 2 to 20 liters per square meters of membrane. Therefore, the concentration of NaOCL needed for cleaning a predetermined membrane area during a week can be determined by the skilled artisan based on the information provided by ‘887, e.g. by selecting a predetermined membrane area, the number of cleaning steps to be performed during a week and the frequency of cleaning, and also depending of the thickness of the layer of clogging material deposited on the membrane. It would have been obvious to one skilled in the pertinent art to perform the cleaning process with different concentration of chemical agents, depending on the degree of clogging an the frequency of cleaning, e.g. when the frequency of cleaning increases it would have been obvious to slightly reduce the concentration of the agent, since the membrane will be more clean at short time of use. Regarding claim 2, cleaning the membrane once a day or more times a day, and cleaning the membrane at a predetermined time interval would have been obvious to the skilled artisan at the time the invention was made, since the leaning formulations, frequency of cleaning depend on the stream being processed, the degree of fouling, the extent of the concentration, etc. It would have been obvious to one skilled in the pertinent art to optimize this conditions for a particular process. In addition, the clogging can be determined before permeate flux is zero, but, for a predermined minimun permeate flux desired. Therefore, the conditions for membrane peremeability before backwashing or cleaning it would have been obvious to the skilled inthe art at the time the invention was made.

3. **THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).**

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not

mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ana Fortuna whose telephone number is (703) 308-3857.

Facsimile No. (703)305-7718.

ANA FORTUNA
PRIMARY EXAMINER
GROUP [illegible]

Ana Fortuna

January 27, 2001